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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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JOHN S. PRATT, ESQ
KILPATRICK STOCKTON, LLP
1100 PEACHTREE STREET
SUITE 2800
ATLANTA, GA 30309

EXAMINER
WYROZEBSKI LEE, KATARZYNA I

ART UNIT	PAPER NUMBER
1714	

DATE MAILED: 07/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/852,855	BERARD, RAYMOND A.	
	Examiner	Art Unit	
	Katarzyna Wyrozebski	1714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 May 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13 and 15-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13 and 15-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

In view of the applicant's request for continuing prosecution and entered amendment, the following action is a non-final. Cancellation of claim 14 is acknowledged. Claims 1-13 and 15-20 are pending.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-11, 13, 15-16, 18-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Yang (US 6,036,726).

The prior art of Yang discloses process for recycling nylon-6,6 articles such as carpets, which articles contain dyes.

According to the claim 27 of the prior art of Yang, the process includes the steps of contacting the polyamide with organic solvent at a temperature sufficient to dissolve the polyamide, separating the undissolved carpet materials and colorant, cooling the polyamide solution thereby causing precipitation.

According to the claims of the prior art of Yang, the temperature at which polyamide is dissolved is in a range of 140-220°C and the precipitation occurs by cooling the polyamide solution to temperature lower than 140°C. In specific examples, the dissolution temperatures were 140°C, 160°C and 180°C (col. 13) at a pressure of 250 psig. Temperature range of 140-155°C is therefore taught by the prior art of YANG.

In the examples the prior art of Yang utilizes solvent system, which is a mixture of alcohol and water. The alcohols include methanol, ethanol, isopropanol and butanol. Ratio of alcohol to water as disclosed in col. 13 of Yang was 60/40, 70/30, 80/20 and 90/10. There is no teaching of glycols and polyols being used. In fact the prior art of Yang teaches that a glycol was not a good solvent for the nylon-6,6 (col. 12, example 10). Since the solvent of the prior art of YANG is the same type of solvent as it is disclosed in present claims, the temperature range overlaps and the type of nylon is the same, then the equilibrium pressure would be an inherent property, which is the property of a solvent.

Further, in Example 1 (col. 9) it is specifically disclosed, that the polyamide recovered during the process is nylon-6,6.

The time in which YANG achieves dissolution is in a range of 0.5-60 minutes more preferably in a range of 0.5-20 minutes (col. 7, lines 14-16).

In the light of the above disclosure, the prior art of Yang anticipates the requirements of claims rejected above.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 10, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang (US 6,036,726) in view of Meyer (US 4,334,056).

The discussion of the disclosure of the prior art of Meyer from paragraph 2 of this office action is incorporated here by reference.

The difference between the present invention and the disclosure of the prior art of Meyer is the recitation of narrower temperature range capable of dissolving and precipitating the polyamide.

With respect to the above differences, the prior art of Meyer discloses process for making polyamide powders by dissolving the polyamide polymer in ethanol at a temperature range of 130-150°C and then cooling it to afford precipitation at a temperature range of 100-125°C. The precipitated polyamide is then recovered from the ethanol (claim 1).

According to the col. 3 of the specification of the prior art of Meyer, the polyamide that can be processed by the process disclosed above can be formed from monomers such as adipic acid and hexamethylene diamine, wherein the two monomers are utilized to form nylon-6,6.

In narrower embodiment, the prior art of Meyer discloses that the temperature range at which the polyamide dissolves is 138-142°C. Since the present invention teaches about 145°C, then the temperature of 142°C reads on present claims in view of the term "about".

The temperature at which ethanol can dissolve polyamide is property of ethanol solvent system and polyamide itself. Therefore if the same solvent system is utilized in a process with the same type of polymer, then the same temperature ranges should apply.

In the light of the above disclosure, it would have been obvious to one having ordinary skill in the art at the time of the instant invention to utilize temperatures of the prior art of Meyers in the process of Yang and thereby obtain the claimed invention. Utilizing lower temperatures to dissolve polyamide in ethanol and precipitate polyamide from ethanol are shown to work efficiently to obtain particulate polyamide. In addition the temperature ranges of the prior art of Yang overlap with the temperature ranges of Meyers.

5. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang (US 6,036,726) in view of Booij (US 5,840,773).

The discussion of the disclosure of the prior art of Meyer from paragraph 2 of this office action is incorporated here by reference.

The difference between the present invention and the disclosure of the prior art of Meyer is the recitation of narrower temperature range capable of dissolving and precipitating the polyamide.

With respect to the above differences, the prior art of Booij discloses process for recycling polyamide from carpet scrap containing nylon-6 and nylon-6,6.

The process of Booij according to the claims of the prior art the solvent utilized to dissolve the polyamide is alcohol selected from the group consisting off methanol, ethanol and propanol. In narrower embodiment (claim 3) this alcohol is mixed with water.

The temperature at which the nylon-6,6 is dissolved is in a range of 135-140°C (claim 13) or 155-165°C (claim 17). According to the example III, the solution was cooled to 25°C to precipitate the white polyamide powder.

The temperatures of the alcohol/water mixture can be as low as 135°C and still effectively dissolve the polyamide.

In the light of the above disclosure, it would have been obvious to one having ordinary skill in the art at the time of the instant invention to utilize temperature range of the prior art of Booij to dissolve the polyamide of Yang and thereby obtain the claimed invention. Utilizing the temperatures of Booij would still dissolve the nylon-6,6 of Yang. In addition the temperature ranges of the prior art of Yang overlap with the temperature ranges of Booij.

6. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang (US 6,036,726) in view of Scott (US 2,742,440).

The discussion of the disclosure of the prior art of Yang from paragraph 2 of this office action is incorporated here by reference.

The difference between the present invention and the disclosure of the prior art of Yang is the presence of inert gas.

With respect to the above difference the prior art of Scott discloses process, which includes steps of dissolving the polyamide in alcohol and water at elevated temperatures. The polyamide is cooling precipitates polyhexamethylene adipamide, which is also known as nylon-6,6. The alcohols are selected from methanol, ethanol and propanol.

The process of the prior art of Scott is conducted in closed container and under nitrogen. Presence of higher pressures is therefore obvious, since the temperatures are higher, additional component (nitrogen gas) is introduced and the container is closed.

Introduction of nitrogen not only increases pressure but it also provides non-oxidizing atmosphere during dissolution and precipitation of the nylon. Oxidation of nylon would degrade the polymer.

In the light of the above disclosure, it would have been obvious to one having ordinary skill in the art at the time of the instant invention to conduct the process of Yang under inert atmosphere as it is disclosed in Scott and thereby obtain the claimed invention. Utilizing inert atmosphere would prevent oxidation of polyamide and thereby it would prevent polymer degradation.

In the amendment filed on 5/10/2004 the applicants argued following:

a) The examples of YANG cannot anticipate the present invention.

With respect to the above argument, these are only examples and they do not constitute an entire disclosure. When making the rejection the examiner has to consider an entire disclosure, and such teaches the limitations of rejected claims.

	Present invention	Prior art	
Tempreature	<155°C	140-160°C	encompassed
Dissolution time	< 45 minutes	0.5-60 minutes	encompassed
Polymer	nylon-6,6	nylon-6,6	encompassed
Source of polymer	floor covering material	carpet	encompassed

Solvent	Alkanol	Alkanol	encompassed
Restr. On solvents	Alkanol and water	Alkanol and water	encompassed
Restr on solvents	ethanol, propanol etc..	ethanol, propanol etc	encompassed
Restriction	free of glycols	no glycols	encompassed
Pressure	250 psi or higher	250 psi	encompassed
Equilibrium pressure	inherent, since is it solvent and temperature dependent.		

b) Yang discloses addition of activated carbon.

The claims of the present invention also do not exclude adding additional components that are not disclosed in claims.

c) The examiner is not clear as to why the applicants have emphasized that the nylon will precipitate once the temperature is cooled, since the present claims teach cooling down the solution of nylon to afford precipitation of the purified polymer.

d) The recitation of widely varying ranges for amounts of materials and the use of language other than the past tense both indicate that the example described was never actually carried out.

With respect to the above argument, neither applicants nor examiner is in a position to question whether the examples of YANG have been actually carried out. The fact remains that the prior art of YANG does teach at least part of the ranges claimed by the present invention.

e) Examiner is invited to cite any case law of which she may be aware that supports proposition that speculative examples citing widely varying possibilities for important parameters is sufficiently specific embodiment for an anticipation rejection.

With respect to the above argument, the examiner is not obligated to cite any case laws. At the same time applicants cannot simply state that the disclosure of YANG is speculative. The fact is that it is a disclosure, speculative or not, and the examiner is obligated to point out the teachings of such disclosure.

f) The recitation of various temperatures and pressures in YANG that fall within the ranges of different claims presented by the applicant is not an indication teaches or discloses such values explicitly or inherently.

What is it then?

g) The applicant also indicated that the examiner has practiced an improper hindsight and applicant's own disclosure in order to form a rejection.

In response to applicant's argument that the examiner's conclusion is based upon improper hindsight reasoning, it must be recognized that any judgment is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

h) The examples of YANG teach ranges (temperature, pressure, dissolution time) outside of the ranges claimed invention.

With respect to the above argument, the examiner stated earlier that the entire disclosure of YANG has to be considered and not only examples.

i) Without some disclosure of external source of pressure, the disclosure of YANG cannot reasonable be held to disclose a dissolution pressure higher than the equilibrium vapor pressure of the solvent.

So heating the solvent would not cause formation of vapor, increase of pressure and temperature in a vessel?

j) MEYER discloses recycling of nylon that is fundamentally different from those disclosed in YANG.

Col. 3 of Meyer discloses nylon-6,6. This nylon is not fundamentally different from nylon of Yang.

k) It is inappropriate for examiner to select only the teachings from Meyer that support her position.

First of all, the claims rejected by Meyer are directed towards the solvents capable of dissolving nylon-6,6. This is the reason why the examiner relied on the prior art of MEYER and that is all the prior art of Meyer was utilized. Meyer may not teach the recycling of the nylon-6,6

however; the dissolution process that governs nylon-6,6 in presence of alkanol and water is related, and therefore would have been known to one skilled in the art.

l) The recycled nylon of the present invention is not degraded and it produces fibers that have improved properties.

With respect to the applicants comment about the degradation of the nylon fiber, the examiner understands what the draw backs are and conditions that degrade nylon. However unless the prior art of YANG or other prior art states that the nylon is degraded that examiner will not allege so either.

m) The applicants request that the examiner point out where such superior results are taught or suggested by the prior art.

With respect to the above argument, the applicants claim a process and not product. Therefore the examiner is not obligated to show any unexpected results. In addition applicant's own invention discloses only the temperature, pressure, solvent and viscosities. There are no real unexpected results that the examiner could relate the prior art of record to.

n) The applicants have argued that the pressure of the present invention is achieved by incorporation of the inert gas and that the prior art of YANG and SCOTT does not teach that.

With respect to claim 1, such limitation is not required. Claim 1 simply calls for pressure. Other claims for which disclosure of the prior art of SCOTT was utilized do call for use of inert gas. With respect to the use of inert gas, it is examiner's position that avoiding

oxidation as stated in the last office action is very good reason to use inert gas and prevent polymer decomposition.

o) Scott requires caution in the process in order to sinister and mold the nylon.

With respect to the above argument, the prior art of SCOTT was utilized for its recitation of inert gas. Incorporation of such gas into enclosed vessel would intrinsically increase the pressure in the vessel that is otherwise enclosed by mere fact that there is more gaseous matter in the container that before the inert gas was incorporated. The prior art of SCOTT was not utilize for recitation as to what will be done with polyamide once it is dissolved. With respect to the argument of improper hindsight reasoning please see comment g).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katarzyna Wyrozebski whose telephone number is (571) 272-1127. The examiner can normally be reached on Mon-Thurs 6:30 AM-4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Katarzyna Wyrozebski
Primary Examiner
Art Unit 1714

July 13, 2004